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UNITED STATES  
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TENNESSEE

184" CYCLOTRON  
VERTICAL D. C. ELECTROSTATIC DEFLECTOR

by

Duane Sewell

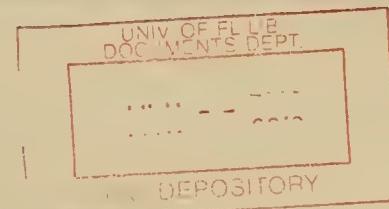
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By Duane Sewell

Experiment done by: J. Vale, L. Houser, R. Watt, W. Chupp,  
A. Reyenga, and W. Grimshaw

INTRODUCTION

It was found from previous experiments that the beam was rapidly spreading vertically at approximately the 81" radius. It was thought that if a vertical deflector was placed below the median plane at this 81" radius, the beam could then expand into the deflecting channel. Once in the deflecting channel it could then be deflected rapidly into a region in which a magnetic shield (or deflector) could be used to bring the beam out of the cyclotron.

RESULTS

1. Approximately 60 kv could be held on the high voltage electrode of this deflector.
2. On one occasion it looked as if an ionization chamber mounted on the probe was detecting a small deflection of the beam. However, this could not be verified on subsequent runs.
3. The best detection of the beam deflection was made by mounting X-ray film on the probe and exposing it to both the undeflected and deflected beam.
4. There was considerable sparking between the HV electrode and the .002" copper foil. The copper foil was warped badly when the deflector was removed; this had apparently been caused by the local heating from the sparking. The 0.002" copper foil supported in this manner is not suitable for this job.
5. The copper foil was very radioactive after a short run.

EXPERIMENTAL SET UP:

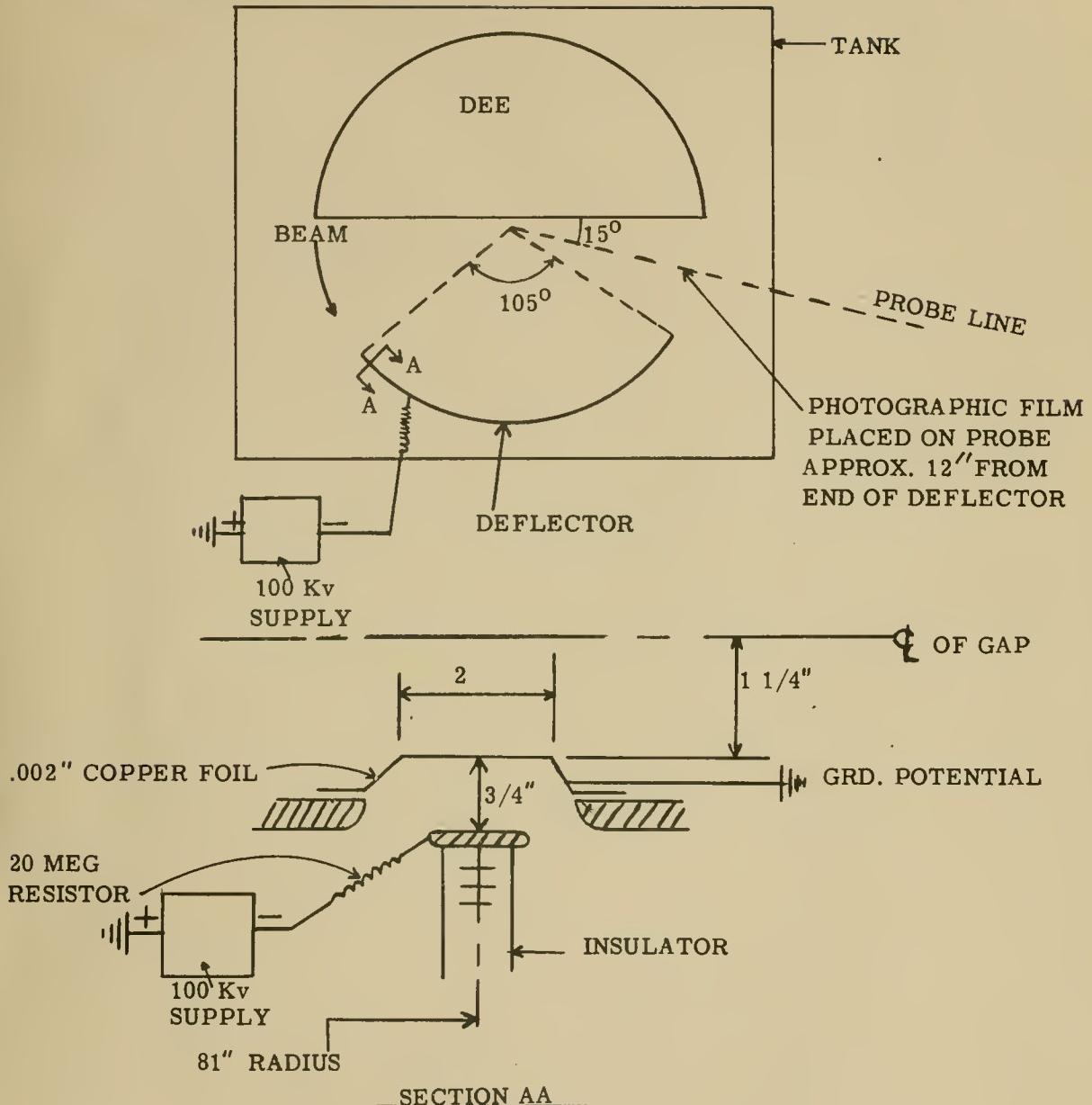


Figure 1

184" CYCLOTRON  
VERTICAL D. C. ELECTROSTATIC DEFLECTOR





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